

U.S. Patent Application No: 10/045,467
Page 2

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS

Claim 1 (previously presented): A liquid crystal display device comprising:

 a first substrate;

 a second substrate facing the first substrate to define a space therebetween;

 a plurality of liquid crystal molecules disposed in the space in a predetermined arrangement; and

 a plurality of electrode pairs disposed on the first substrate, all the electrode pairs being disposed parallel with each other, each electrode pairs comprising:

 a first electrode with a first end and two symmetric first lateral sides connecting with the first end, formed on the first substrate, wherein the length of the first end is less than the length of the two symmetric first lateral sides; and

 a second electrode with a second end and two symmetric first lateral sides connecting with the second end, formed on the first substrate, wherein the length of the second end is less than the length of the two symmetric first lateral sides connecting with the second ends, the first end facing the second end with a discharge gap therebetween;

 the electrodes in each pair disposed such that when an external voltage is applied between the first and the second electrodes, an axially symmetric electrical field is generated to change the arrangement of the liquid crystal molecules.

U.S. Patent Application No: 10/045,467
Page 3

Claim 2 (previously presented): The liquid crystal display device of claim 1, wherein the predetermined arrangement of the liquid crystal molecules is in a vertical alignment, each liquid crystal molecule has a longitudinal axis, and the longitudinal axis is substantially perpendicular to the first substrate.

Claim 3 (previously presented): The liquid crystal display device of claim 1, wherein the predetermined arrangement of the liquid crystal molecules is in a vertical alignment, each liquid crystal molecule has a longitudinal axis, the longitudinal axis is substantially perpendicular to the second substrate.

Claim 4 (previously presented): The liquid crystal display device of claim 1, wherein the predetermined arrangement of the liquid crystal molecules is in a horizontal alignment, each liquid crystal molecule has a longitudinal axis, and the longitudinal axis is substantially parallel to the first substrate and perpendicular to a line formed by the first end and the second end.

Claim 5 (previously presented): The liquid crystal display device of claim 1, wherein the predetermined arrangement of the liquid crystal molecules is in a horizontal alignment, each liquid crystal molecule has a longitudinal axis, and the longitudinal axis is substantially parallel to the second substrate and perpendicular to a line formed between the first end and the second end.

Claim 6 (previously presented): The liquid crystal display device of claim 1, wherein the first and the second electrodes are arranged axially with respect to each other and wherein the first electrode is symmetrical to the second electrode along a line of axial symmetry.

U.S. Patent Application No: 10/045,467
Page 4

Claim 7: (cancelled)

Claim 8 (previously presented): The liquid crystal display device of claim 1, wherein the width of the first electrode increases from the first end to the other end, and the width of the second electrode increases from the second end to the other end.

Claim 9 (previously presented): The liquid crystal display device of claim 1, wherein the thickness of the first electrode increases from the first end to the other end, and the thickness of the second electrode increases from the second end to the other end.

Claim 10 (currently amended): A liquid crystal display device having a plurality of display cells comprising:

a first substrate;

a second substrate facing the first substrate, a space for housing liquid crystal molecules being formed between the first substrate and the second substrate;

a plurality of liquid crystal molecules formed in the space in a predetermined arrangement; and

four electrodes disposed on the first substrate and at corners of each display cell;

the electrodes disposed such that a center area of each display cell is prevented from being shielded by the electrodes, and when an external voltage is applied between the four electrodes, an axially symmetric electrical field is generated to change the arrangement of the liquid crystal molecules.